

*“If we get their numbers back up, the devils themselves will sort it out.
They’re a very capable animal. They’ve been here 10,000 years. It’s their island.”*
—Dr David Pemberton

Dealing with the devil

*writer Crispin Andrews
photographs courtesy of Save the Tasmanian Devil Program*

On September 25, 2015, 20 Tasmanian devils took their first steps around Narawntapu National Park, in north-east Tasmania. These were released animals bred in captivity and microchipped so that conservationists could keep track of them. They were also the first Tasmanian devils to be released into the wild since the contagious cancer that threatens the species appeared in the mid-1990s.

According to Aboriginal legend, the devil was once a handsome animal turned into its current form by spirit healers for stealing baby animals for food. European settlers named it Tasmanian devil because of its aggressive behaviour, mainly towards other devils, and the screaming noise and skunk-like smell it makes when threatened.

On mainland Australia, dingoes wiped out devils 400 years ago, but in Tasmania they have been top of the food chain since the thylacine, a

larger dog-like marsupial, was killed off in the early 20th century. Devils avoid feral dogs and otherwise act as the playground bully. Quolls, a smaller marsupial predator, and feral cats keep out of the devils’ way.

Since the mid-1990s and the onset of devil facial tumour disease (DFTD), devil populations have fallen by 70%. And although devils are yet to go extinct in any one part of Tasmania, many experts believe that without help, the world’s largest marsupial predator (unless you believe the stories about surviving thylacines) could die out.

When animal populations reduce as dramatically as has been the case with Tasmanian devils, the animal, with much lower numbers, is at risk from other threats. In the devils’ case, that’s being hit by cars on roads where they scavenge for dead animal carcasses, dog attacks, or eating poison that people put down to kill rodents.



A captive Tasmanian devil



*Program manager of the Save the Tasmanian Devil Program,
Dr David Pemberton, on Maria Island*

Dr David Pemberton, program manager with the Save the Tasmanian Devil Program, a conservation group, says that the north-east of Tasmania was chosen to reintroduce the captive-bred devils because that's where DFTD most likely originated. Narawntapu is also a relatively isolated national park, so there's less chance of the released devils getting run over than if they lived in more populated areas (although several of the released devils have been hit and killed by vehicles).

"Before the disease, there used to be more than 100 devils in Narawntapu National Park," Dr Pemberton says. "When we released our animals, there were only around 20 wild devils left."

A South African-born biologist, Pemberton arrived in Tasmania in the early 1980s to work with devils. He completed his PhD, on the animals, in 1983. Before that, he'd been working with spotted hyenas in South Africa's Kruger National Park.

"Hyenas are gorge feeders, like devils," Pemberton says. "Both animals kill their own food and eat carrion."

He recalls an early encounter with a devil near Montague River in north-western Tasmania. "It was climbing a tree, with its claws digging into the bark," he says. "It looked like Spider-Man clambering up a wall." Pemberton also remembers seeing a devil in the water, swimming. "It took a deep breath and then ducked under the water, before resurfacing further down the stream," he adds. "Amazing animals."

Pemberton joined the Save the Tasmanian Devil Program (STDP) when it was established in 2003. The program is funded by the Tasmanian and Australian governments.

During the program's first few years, scientists studied DFTD and discovered that the disease could be transmitted between devils through biting and scratching.

No one really knows what caused the disease. What is known is that their immune systems don't recognise the cancer cells as a threat. The disease most likely lay dormant within devils' genetics for centuries, until a recent mutation made it fatal. Some believe years of eating poisoned carcasses damaged devils' immune systems so they could no longer fight off the disease. Research shows that the tumour cells thrive by hiding from the devils' immune system. Infected animals are unable to eat, drink or breathe. The disease has also mutated many times since it was first discovered.

During the second stage of the STDP, experts mapped the distribution of DFTD and its impact on devil population and the environment. "Devils are good at cleaning up the landscape of dead carcasses," Pemberton says. "They also hunt and kill smaller animals, so when there are substantially fewer devils in an area, ecosystem dynamics change."

David Pemberton wants to re-establish devil populations before this happens. "Devils are resilient animals. They can live in a broad range of habitats, eat almost anything, and even an infected female can have three or four litters of up to four offspring before she dies."

To re-introduce the Tasmanian devil means breeding animals free from the disease, in captivity. Experts believe they need a breeding population of 500 to maintain genetic diversity over a 50-year period. Originally, STDP sent the breeding devils to mainland Australia, but once they realised that devil facial tumour disease was not airborne, the animals returned to facilities in Tasmania. About 600 devils currently live in free-range enclosures. The aim is to maintain an insurance population, but also to release more animals into Narawntapu and other devil strongholds over the coming years.

Nick Mooney, a Tasmanian conservationist and devil expert, believes some of the captive devils will be useful for repopulating areas where devils, and hopefully the disease, have been removed. He

adds, though, that if captive-bred devils are not wild enough when released, the devils will be very vulnerable to human influences such as roadkill and dogs. “The evidence is that devils will not go extinct in the wild in the foreseeable future unless other issues overwhelm the depleted population, which is how disease related extinctions usually take effect.”

Just in case Mooney is wrong, scientists at the University of Tasmania are working on a vaccine against DFTD. During tests, they were able to activate the devils’ immune response to fight the cancer cells. All of the devils released into Narawntapu were immunised. Eighteen had produced an immune response in captivity

The scientists developed tools to measure antibody responses and produced natural devil

Another captive Tasmanian devil



proteins that stimulate tumour cells to reveal themselves to the devils' immune system. This they hope will allow the devil's immune system to work as it should, and destroy the tumour cells before the cells can cause the disease. David Pemberton admits, though, it is early days for this vaccine.

Over the next few months, STDP experts will monitor the devils released in Narawntapu. They're using infra-red sensor cameras at feed stations and latrine sites. They've set up microchip scanners to record which devils go where.

"We can't manage the disease but we can manage the animals," Dr Pemberton says. "If we get their numbers back up, the devils themselves will sort it out. They're a very capable animal. They've been here 10,000 years. It's their island." 📺



A Tasmanian devil just after release at Narawntapu National Park

TASMANIAN DEVIL FACTS

A large neck and head give devils the strongest bite force per unit mass of any living mammal. A devil's jaw opens 75 to 80 degrees, generating enough power to tear meat and crush bones. It bites as hard as a dog four times its size and can bite through a metal trap.

Devils have such an efficient running style they can travel vast distances at a steady trot without getting tired. During a long chase, they harass their prey and, once it's exhausted, suffocate it with a cat-like bite to the windpipe.

Devils are not territorial. They share home ranges of up to 30 square kilometres. Nocturnal animals, they tend to keep to well-known trails, although they will drag food away from these communal pathways to hide it from other devils.

Devils have claws long enough to dig up grubs and are strong enough to take down larger animals such as wombats. When young, they climb trees in search of possums, birds and eggs. They have been known to eat pencils, plastic, jeans and old boots.

Devils have high metabolic rates, so need a high-protein diet. They must eat 15 per cent of their body weight per day and can, when particularly hungry, consume 40 per cent of their body weight in 30 minutes. Sometimes, devils eat so much they have to waddle away for a lie down.

Lots of muscle mass and a heavy bone structure make the devil a resilient animal. Its head and jaw are built to withstand a counter-attack from much larger prey. Once a devil moves in for the kill, it's not easily discouraged.

Devils don't attack or confront humans. They will just run away. That's from live humans. Legend has it that the bodies of several people who died in the bush, in devil country, have never been found.

A pack of devils can devour an animal carcass within half an hour, bones and all. They are also consummate predators and have been seen taking down animals as large as wallabies.